Colorado Department of Health

Comments

FINAL

PHASE 1 RFI/RI WORK PLAN

ROCKY FLATS PLANT

WALNUT CREEK PRIORITY DRAINAGE

(Operable Unit No. 6)

SEPTEMBER 1991

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The following reiterate the Division's comments on the "Final Draft" of the subject document submitted April, 1991. For ease, the references cited in the "Document Review Comment Record" are utilized to call attention to issues that have not been resolved to the satisfaction of the Division. DOE responses deemed unacceptable but not critical to the success of the work plan have been omitted. However, the Division retains the right to "recall" comments in its review of the eventual RFI/RI Report.

Citation C-3: The Division remains concerned that the vadose zone will not be properly addressed through the execution of this work plan. The Division cannot recall, and has not found, any specific discussion of the vadose or unsaturated zone. The "vadose zone sampling ... provided for in the FSP" is more circumstantial than planned. The vadose zone sampling the Division envisions goes beyond that provided by SOPs GT.2 and FO.16 to embrace the collection of gas and liquid samples as proposed in the approved OU-7 work plan, i.e. the BAT sampler. This is not to suggest that every borehole at every IHSS is lacking this approach. Only those sites where the types of contaminants, the waste management practice, and the duration of that practice, may have fostered movement of contaminants into or through the vadose zone are at issue. These specifically are: the North, South & Pond Area Spray Fields, Soil Dump Area, Triangle Area and Trenches A, B & C. The remaining IHSSs are of lesser concern pending FSP results.

Citation C-4: Please refer to the Division's letter of September 19, 1991, entitled "Phase I and Phase II RFI/RI Workplans and Investigations". The position of the Division and EPA concerning the need for comprehensive assessment of nature and extent of contamination, as an integral part of this work plan, is therein supported.

Citation C-40: DOE's attempt to resolve the significance of Trenches A, B & C to the Rocky Flats Alluvium is inadequate. The alluvium is not "near" or "in the area of" the trenches. The trenches were dug into or through the alluvium. This is a fact; state the fact. Why is it so difficult to say: The aquifer in, or through, which the trenches were dug is the Rocky Flats Alluvium. The potential for contamination of this aquifer shall not be diminished by a resourceful choice of words.

Citation C-49: Modification of the conceptual models to a generic version was a poor choice. Specific conceptual models should be used to drive the FSP to adequately address the data needs for risk assessment and nature & extent of contamination. Not only has DOE responded that this work plan is not intended to address nature and extent, but the simplification of the conceptual model has assured that even the risk assessment data requirements are not fully addressed.

Citation C-72: The Division acknowledges that the chemical parameters Benzene, Phenol etc. were listed as Parameters on the original Table 3-3 and appreciates that numerical standards, **previously omitted**, have now been included.

Citation C-87: It appears from DOE's response that the comment is not understood. The Division is concerned that false negatives on soil gas surveys may lead DOE to scrap boreholes/wells that may detect contaminants in vadose or ground water. "Checks" on screening techniques are essential to diminish the potential for "missing" contaminants.

Citation C-89: The Division rejects DOE's assertion that "it is premature to speculate on what the possible result of the Phase I investigation will be." Although the result of the Phase I investigation as a whole may be complex, it remains that the results from sampling and analysis efforts on an IHSS by IHSS and sample technique by sample technique basis can be used to decide on a next level of effort or, if warranted, no additional effort. For example, if soil borings indicate contamination is moving into vadose water, then sampling with the BAT instrument (see OU-7 work plan) would be indicated. If soil borings found nothing of consequence then vadose sampling could be omitted. Also, see the Division's comment to DOE's response to Citation C-4.

Citation C-92: The Division's comment, C-108, concurred that the planned borings were adequate to define the type and level of

contamination. DOE should not infer that a hole bored two feet below the original surface of the Old Outfall would characterize stratigraphy. Please refer to a geologic dictionary; stratigraphy is defined quite differently than lithology. The planned boreholes should provide a glimpse of the lithology but will not penetrate bedrock strata to a depth sufficient to define geologic succession.

Citation C-94: Please see the Division's comment to DOE's response to Citation C-4.

Citation C-107: DOE's has not replied to why additional sediment sampling sites were not proposed for the downstream portion of the unnamed tributary. The Division has stated that older data may not be useable. DOE responded by eliminating many of the proposed North and South Walnut Creek sediment sample sites without any indication as to the useability of older data. DOE should return to the earlier proposal or demonstrate that the older data have been validated and that they are sufficient in quantity. (Relocating one of the sediment sampling sites downstream of the South Area Spray Field is acceptable.)

Citation C-108: Steps 1 and 2 of Section 7.2.3 still discuss radiation surveying and soil sampling of the **existing** surface. Although Table 5 specified this sampling effort, the Division believes that it can be scaled back or eliminated. If it is DOE's intent to perform this work due to the unknown origin of the fill, the effort may have merit.

Step 3 will provide data from the **pre-existing** surface; however, the location of the boreholes as depicted on Figure 7-5 are misleading. A review of Figure 2-14 clearly shows that proposed boreholes along the east boundary (and others) will not target suspected areas of contamination. Figure 2-14, therefore, should be used as a base to select borehole locations, not Figure 7-5.

Citation C-112: It is correct that the IAG, Table 5, specified the collection of samples "around the perimeter" of this unit; however, DOE's interpretation that this excluded sampling of the waste piles is incorrect. Clearly, the piles are intended to be the focus of the investigation.

The issue is whether reducing the sample grid from 50 feet to 150 feet is appropriate. DOE still has not defined the type of grid used (See C-96 of the Document Review Comment Record); therefore, the Division assumes it is a mesh-centered grid and recommends to EPA that a 75' mesh-centered grid be imposed. This would result in a approximate 50% reduction in sample coverage based on the IAGs 50' grid requirement.

The following comments pertain to the September, 1991 Final Phase I Work Plan and are referenced by section, page and paragraph as necessary:

Section 2.11: The disposition of Division comment C-49 states that "All of the conceptual models have been modified to present a generic conceptual model showing all pathways of exposure for all of the IHSS's." Site **conceptual** models should be used to assist in identifying sampling needs to obtain information for evaluating risks to human health. The conceptual models presented in the work plan cannot effectively identify sampling needs.

Each individual IHSS in OU-6 has a history of waste management practice (spraying, dumping, burial), suspected types of contaminants (radionuclides, metals, VOCs), and physical setting (geology, topography, hydrology) that help define expected or probable exposure pathways. When this information is used to **conceptualize** how exposure may occur it is then possible to rationally define the types of samples, screening techniques and analysis requirements that will determine contaminant concentrations along each pathway. Without an analysis of the pathways it is reasonable to suspect that data needs will **not** be fully addressed.

The Division has conducted a preliminary analysis of pathways and has identified gaps in the data needed for risk assessment. DOE must not miss this opportunity to collect all relevant data. Therefore, a conceptual model, comparable to that developed for the OU-3 work plan, should be prepared.

Following is a list of additional samples (and where appropriate analyses) that must be collected to fulfill data needs, others may be identified through a more rigorous pathways analysis. Please refer to the attached copy of Table 7-11 which summarizes additions proposed by the Division.

IHSS 141 - Sludge Dispersal Area:

No significant gaps identified; however, vadose zone sampling limited to coverage afforded by drilling program SOPs GT.2 and FO.16.

Table 7-11 should include an analysis for Plutonium and Americium in the down gradient well. Although not specified in Table 5 of the IAG Statement of Work, the levels of strontium and manganese (Table 2-9) suggest that plutonium and americium may also be present. Further indication of the need for analysis of plutonium and americium is the potential for plutonium contamination discussed in section 2.7.4.

Given the fact that a "variety of chemicals" were processed at the Sewage Treatment Plant (see Section 2.7.4), it may be necessary to

check for PCBs and pesticides in the surface samples. Please consider whether this is appropriate.

IHSS 142.1-9, 12 - A and B Series Ponds:

Need 2" surface samples of dry sediments in stream bottoms and/or below the higher water level of stream banks. The proposed 2' composites may dilute contaminants at the surface. These data will address the risk from direct dermal contact and wind eroded ingestion and dermal contact.

IHSS 143 - Old Outfall:

Ground water monitoring wells should be considered. It is unclear whether there is a significant need. Please provide a rationale for there inclusion or exclusion.

Once again, the Division does not believe that surface samples, of the existing surface, are needed. If the radiation survey detects above background levels in the fill material, then they would be of value for a new reason. The analysis suite for the core samples is adequate provided there is no basis to expect volatiles.

IHSS 156.2 - Soil Dump Area:

Need downgradient sediment sites in rills discharging to the A & B Series Ponds. Samples of surface waters exiting the IHSS are also desirable if an approach can be developed to capture runoff following precipitation events.

The location of the proposed monitoring well is questionable. A more downgradient location should be proposed, one that offers the best opportunity to detect contamination in the ground water.

TAL Metals is scheduled for the proposed monitoring well; if there is reason to suspect metals in the ground water then there is reason to suspect metals at the surface and in the subsurface. Also, Section 2.10.4 states that plutonium is present at low levels. There is nothing to suggest that plutonium was the only metal introduced to the environment. TAL Metals should be added to the "Surface Samples" and "Borings" planned for this unit.

IHSS 165 - Triangle Area:

Routine surface soil samples are needed to check for metals and radionuclides contamination, not just when VOCs and radionuclides are detected through screening techniques.

Need downgradient sediment sites in rills discharging to the A Series Ponds (Sediment sample stations proposed for the A & B Series ponds are acceptable for discharges to the B Series ponds.) Samples of surface waters exiting the IHSS are also desirable if an

approach can be developed to capture runoff following precipitation events.

Nitric acid spills and the potential for leaching of metals into the vadose zone need to be addressed. SOPs GT.2 and FO.16 do not adequately cover metals.

The presence of "several metals" is discussed relative to Well 209689 (Table 2-16) which is located within this unit. Once again, if there is reason to suspect metals in the ground water then there is reason to suspect metals at the surface and in the subsurface. Also, the various types of waste stored at the unit indicate the need for a full suite of analyses. Please include TAL Metals for the "Surface Samples".

The potential also exists for pesticides and PCB due to the variety wastes stored. Please add these to Table 7-11 for the "Surface Samples"

IHSS 166 - Trenches A, B and C:

Only one downgradient well has been proposed specific to the units. Given the lack of information on the buried wastes, monitoring wells are needed downgradient of each trench.

IHSS 167 - North, Pond, and South Area Spray Fields:

Surface water station SW-100 is inadequate to determine contaminant levels in runoff. A new station immediately downstream of the South Area Spray Field, and with a smaller potential impact from current spraying operations at the East Landfill Pond, is needed.

Existing monitoring well B206789 may be adequate but a determination, pro or con, should be made as part of the RFI/RI activities and replaced if necessary.

IHSS 216.1 - East Area Spray Field:

Although the sampling plan for this unit does not take into account surface or ground water release mechanisms, the short duration of spraying diminishes the need for a full sample plan. The proposed surface samples and borings are an adequate first step.

<u>Section 3.0:</u> The division will withhold any additional comments to this section until such time as a site-wide approach to ARARs, requested in joint Division and EPA correspondence dated August 13, 1991, is discussed and resolved. Therefore, the State is reserving the right to comment further on this section at a later date even though this is a final document.

Section 5.2: The first paragraph of page 5-2 should reference the involvement of the public in the RFI/RI process through the Technical Review Group (TRG) process.

Section 10.0: Figure 1, page 5 of 41, references the OU-7 Manager. It appears that the organization chart is not specific to OU-6.

TABLE 7-11
PHASE I ANALYTICAL PROGRAM

IHSS	Location	Media	Total U	Total Cr	Be	H3	Nitrate	Gross ∝	Gross β	U 233/234	U 235	U 238	Pu 239/240	Am 241	Cs 137	Sr 89/90
141	Surface samples on 25' grid	Soil		X	X		X	X	X	X	X	X	X	X		
	Well downgradient of unit	Water	X					X	X				X	X		
142	Sediment samples	Seds.		X	X	X	X	X	X	X	X	X	X	X	X	X
	Water samples	Water		X	X	X	X	X	X	X	X	X	X	X	X	X
	Wells downgradient of A-4 and B-5 including the four Bedrock Wells in North Walnut Creek	Water		X	X	X	X	X	X	X	X	X	X	X	X	X
143	Surface and core samples on 20' grid	Soil		X	X	X	X	X	X	X	X	X	X	X		
156	Surface samples	Soil						X	X	X	X	X	X	X		
	Borings	Soil						X	X	X	X	X	X	X		
	Well within unit	Water						X	X	X	X	X	X	X		
165	Surface samples from transect locations	Soil	X		X			X	X	X	X	X	X	X		
	Borings to confirm soil gas	Soil														
	Borings transecting plumes grabs from 2' intervals 6' composites	Soil			X			X	X	X	X	X	X	X		
	Wells within the site	Water						X	X							
166	Borings along each trench grabs from 2' intervals 6' composites	Soil						X	X	X	X	X	X	X		
	Well downgradient of the trenches and the Bedrock Well located in unnamed tributary of North Walnut Creek	Water						X	X							
167	Surface and core samples on 100' grid	Soil						X	X	X	X	X	X	X		
	Wells downgradient of units	Water				X	X						X	X		
216	Surface and core samples	Soil				X		X	X	X	X	X	X	X		

TABLE 7-11
PHASE I ANALYTICAL PROGRAM
(Concluded)

IHSS	Location	Media	TAL Metals	TOC	TCL Vols	TCL Semi	TCL Pests	Filtered U	Filtered Pu 239/240	Filtered Cs 239/240	Filtered Sr 89/90	Filtered Am 241	Filtered TAL Met	Filtered Anions TDS
141	Surface samples on 25' grid	Soil	X				X							
	Well downgradient of unit	Water	X		X	X								
142	Sediment samples	Seds.	X	X	X	X	X							
	Water samples	Water	X		X	X		X	X	X	X	X	X	X
	Wells downgradient of A-4 and B-5	Water	X		X	X		X	X	X	X	X	X	X
143	Surface and core samples on 20' grid	Soil	X	X										
156	Surface samples	Soil	X	X										
	Borings	Soil	X											X
	Well within unit	Water	X					X	X			X	X	
165	Surface samples from transect locations	Soil	X	X			X							
	Borings to confirm soil gas	Soil			X	X								
	Borings transecting plumes grabs from 2' intervals 6' composites	Soil	 X		X	X								
	Wells within the site	Water	X		X	X	X							
166	Borings along each trench grabs from 2' intervals 6' composites	Soil	 X		 X							X		
	Well downgradient of trench	Water	X		X	X	X							
167	Surface and core samples on 100' grid	Soil	X	X										
	Wells downgradient of units	Water	X		X		X	X	X					
216	Surface and core samples	Soil	X	X										